

Amendments to the Claims:

This listing of claims will replace all prior versions and listings of claims in the application.

1. (currently amended) A mobile communication system performing both radio communication to a mobile station and packet communication within the system, said mobile communication system comprising:

a top node located at a boundary between a mobile communication network and a fixed network of an IP network system;

a plurality of terminal nodes respectively to accommodate mobile stations thereunder;

a plurality of intermediate nodes layered in a tree-shape connection structure and provided between the top node and the terminal nodes, the tree-shape connection structure having a network structure in which there is no redundant routes for IP packet flow to each terminal node of the plurality of terminal nodes,

wherein each terminal node of the plurality of terminal nodes retains respective management information of a mobile station ~~so that the management information of the mobile station is kept by only one related terminal node~~ which is accommodated in a terminal node of interest, and

wherein each intermediate node of the plurality of intermediate nodes transfers user data received from any node located from within the mobile communication network, including a top node, an intermediate node, or a terminal node, or received from a different network and addressed to the mobile communication network, by use of a broadcast format to the plurality of terminal nodes, in which the user data is further transmitted to a mobile station subordinate to and managed by the terminal node of interest, based on the management information retained by the terminal node of interest.

2. (cancelled)

3. (previously presented) The mobile communication system according to claim 1, wherein a parameter requesting to use a common traffic channel is contained in a connection request signal transmitted from the mobile station to the terminal node, and by use of the parameter, the terminal node secures a transmission path for transferring the user data on the common traffic channel provided between the mobile station and the terminal node.

4. (previously presented) The mobile communication system according to claim 3, wherein an IP address assigned to the mobile station is further contained in the connection request signal, and the terminal node generates a management table having the IP address correspondingly to a number for identifying the mobile station, and the mobile station is managed on an IP address basis according to the management table.

5. (previously presented) The mobile communication system according to claim 1, wherein the terminal node comprises at least a function of managing the terminal location, a function of managing a communication path, and environment setting information necessary for establishing packet communication between the mobile station and the terminal node, and a message transmitted from the mobile station for generating the environment setting information is terminated in the terminal node.

6. (previously presented) The mobile communication system according to claim 1, wherein the terminal node is either a radio base station or a radio network controller.

7. (previously presented) A packet transmission method in the mobile communication system according to claim 1, the method comprising:

a first processing procedure registering the location of the mobile station into the terminal node by setting up a signal transmission path between the terminal node and the mobile station;

a second processing procedure setting a mobile communication environment;  
and

a third processing procedure setting up a user data transmission path.

8.(currently amended) A mobile communication system transmitting information either addressed to or originated from a mobile station on a packet communication basis between hierarchically disposed nodes,

wherein the hierarchically disposed nodes are layered in a tree-shape connection structure having a network structure in which there is no redundant routes for IP packets to each terminal node,

a node disposed on the superordinate side in the hierarchy comprises a means for transmitting a packet in a broadcast format to a plurality of terminal nodes disposed on a subordinate side, and

~~a node~~ each terminal node of the plurality of terminal nodes disposed on the subordinate side in the hierarchy comprises a means for transmitting a user packet to a predetermined node superordinate to ~~the~~ a terminal node of interest, according to information received from the mobile station accommodated in the terminal node of interest,

wherein each terminal node of ~~[[a]] the~~ plurality of terminal nodes retains respective management information of a mobile station ~~so that the management information of the mobile station is kept by only one related terminal node which is accommodated in the terminal node of interest, and~~

wherein, each intermediate node of the plurality of intermediate nodes transfers user data received from any node located from within in the network structure, including a top node, an intermediate node, or a terminal node, or received from a different network and addressed to the network structure, by use of a broadcast format to the plurality of terminal nodes, in which the user data is further transmitted to a mobile station subordinate to and managed by the terminal node of interest, based on the management information retained by the terminal node of interest.

9.(currently amended) A node included in a mobile communication system transmitting information either addressed to or originated from a mobile station on a packet communication basis between hierarchically disposed nodes,

wherein the hierarchically disposed nodes are layered in a tree-shape connection structure having a network structure in which there is no redundant routes for IP packets to each terminal node, and

each node comprises:

a transmission unit to transmit a user packet in a broadcast format to a plurality of terminal nodes disposed on subordinate side in the hierarchy; and

a reception unit to receive a user packet transmitted from a predetermined subordinate node,

wherein each terminal node of ~~[[a]]~~ the plurality of terminal nodes retains respective management information of a mobile station of interest ~~so that the management information of the mobile station is kept by only one related node which is accommodated in a terminal node of interest, and~~

wherein, each terminal node of the plurality of terminal nodes transmits the broadcasted user packet to the mobile station of interest, based on the management information retained by the terminal node of interest.

10. (currently amended) The node according to claim 9, wherein

the transmission unit broadcasts a user packet not addressed to a different system, and

when a received packet is addressed to the different system, the transmission unit transmits said user packet either to the different system, or to a corresponding further superordinate node in the hierarchy.

11. (cancelled)